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EXAMINER	
ARJOMANDI, NOOSHA	

ART UNIT	PAPER NUMBER
2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,329	KODAMA, SHOJI	
	Examiner	Art Unit	
	Noosha Arjomandi	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-17 and 19-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-17 and 19-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *October 7, 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed on November 9, 2007, in which claims 1-2, 4-17, and 19-39 are presented for further examination.

Response to Arguments

2. Applicant's arguments with respect to claims 1-2, 4-17, and 19-39 have been considered but are not persuasive.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 4-17, 19-27 and 33, 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cochran US Patent no. 6,718,447 in view of Ulrich et al., (hereinafter "Ulrich") US Patent no. 6,775,792 .

As to claims 1, 10, 23, 33, and 37, Cochran provides a Method and System for Providing Logically Consistent Logical Unit Backup Snapshots Within One or More Data Storage

Devices. In particular, Cochran discloses the claimed features "receiving a file request in connection with a file [as the applications running on host computer 402 generate I/O requests for data stored on primary LUN 420 of disk array 418, which is mirrored by backup LUN 428 of secondary disk array 424. (column 5, lines 61-64 & column 6, lines 8-10)]; performing one or more first operations on a first file system in response to the file request, wherein the one or more first file operations are performed on a copy of the file [A WRITE request from output queue 404 thus is transmitted first to the first disk array 418, queued to the input queue 416 of the first disk array 418. The controller of the first disk array 418 dequeues WRITE requests from the input queue 416, executes the WRITE requests on the primary LUN 420 to write data to the primary LUN, and queues mirror WRITE requests to output queue 422 for transmission to the input queue 426 of the second disk array 424 for writing to the backup LUN 428. (column 6, lines 9-17)]; selectively performing one or more second operations in response to the file request, wherein the one or more second operations are performed on a copy of the file, wherein client systems can access files on the first file system only via the file server, wherein client systems can access files on the second file system directly, absent the file server" [all WRITE requests related to the first and second transactions have been executed on the primary LUN 420, which is now in a logically consistent state. WRITE request 412 has been placed on output queue 422 of the first disk array 418 for transmission as a mirror WRITE request to the second disk array 424. WRITE request 411 resides on the input queue 426 of the second disk array 424. The backup LUN 428 contains data associated with WRITE requests 406, 408, and 407, and is therefore logically inconsistent with respect to both the first and second transactions. Note that the data state

of the primary LUN 420 is inconsistent with the data of the backup LUN 428. (column 8, lines 3-14)]. Moreover, Cochran discloses queuing up write requests, which are then mirrored to a backup LUN. However, Cochran does not show or suggest a first file system different from a second file system and a format of the first file system is different from a format of the second file system.

On the other hand, Ulrich discloses a first file system different from a second file system [(creating first file system metadata on a first file server operable connected to a network fabric, the first file system metadata describing at least files and directories stored by the first file server; creating second file system metadata on a second file server connected to the network fabric, the second file system metadata describing at least files and directories stored by the second file server, the first file system metadata and the second file system metadata includes directory information that spans the first file server and the second file server, the directory information configured to allow a requestor to find a location of a first file catalogued in the directory information without prior knowledge as to a server location of the first file, see col.7, lines 45-54)] a format of the first file system is different from a format of the second file system , the network file storage system includes a first file server operably connected to a network fabric; a second file server operably connected to the network fabric; first file system information loaded on the first file server; and second file system information loaded on the second file server, the first file system information and the second file system information configured to allow a client computer operably connected to the network fabric to locate files stored by the first file server and files stored by the second file server without prior knowledge as to which file server stores the files. In one embodiment, the first file system information includes

directory information that describes a directory structure of a portion of the network file system whose directories are stored on the first file server, the directory information includes location information for a first file, the location information includes a server id that identifies at least the first file server or the second file server, (col. 6, lines 41-57) It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cochran' system by providing a multiple file system different from each other. One having ordinary skill in the art would have found it motivated to use such a modification for the purpose of allowing the first file server to access files on the second disk array in the event of a failure of the second file server.

As to claim 2, Ulrich discloses the claimed "wherein each file contained in the second file system comprises sequentially allocated blocks" [(Each logical block is allocated to a particular parity group type and may be subsequently accessed during data storage processes when the group type is requested for data storage. During initialization of the disk array 140, the server 130 allocates all available disk space to parity groups 2335 of various lengths or sizes which are subsequently used to store data and information, (see col.51, lines 18-23).].

As to claim 4, Ulrich discloses the claimed "wherein the format of the first file system is not a publicly known format and the format of the second file system is a publicly known format" [the first file system metadata and the second file system metadata includes directory information that spans the first file server and the second file server, the directory information configured to allow a requestor to find a location of a first file

catalogued in the directory information without prior knowledge as to a server location of the first file, (see col.7, lines 45-54)].

As to claim 5, Ulrich discloses the claimed "wherein each file contained in the second file system comprises one or more blocks of physical storage allocated in sequential order" [the ordering or sequence of the blocks is maintained through a linked list organizational schema, (see col.48, lines 35-48)].

As to claim 6, Ulrich discloses "wherein the step of performing one or more second operations is performed if the file request includes a write-type operation on the file" [instruction code is set up by the host CPU when the transfer is queued, and can specify that data is to be written or read to one or both of the cache memories, (see col.60, lines 25-32)].

As to claim 7, Ulrich discloses "wherein the step of performing one or more second operations is performed only after completing the step of performing one or more first operations" [sending a root-directory lookup request to a first file server operable connected to a network fabric; receiving a first lookup response from the first file server, the first lookup response includes a server id of a second file server connected to the network fabric; sending a directory lookup request to the second file server; and receiving a file handle from the second file server, (col.5, lines 65-col.6, line 8)].

As to claim 8, Ulrich discloses the claimed "wherein the step of performing one or more second operations is performed is queued up in a list of operations to be performed on the second file system, wherein the list of operations comprise operations from previous file" [As blocks are written to or read from the disk array, the server uses the links to identify the order of the blocks used for each parity group, (col.48, lines 35-48)].

As to claim 9, Ulrich discloses the claimed "performing one or more second operations is performed if the file close operation" [as the second file system information including a second intent log of proposed changes to the second metadata, the first file server having a copy of the second intent log, the second file server maintaining a copy of the first intent log, thereby allowing the first file server to access files on the second disk array in the event of a failure of the second file server, (see col. 6, lines 51-57)].

As to claims 11-16:

The limitations of claims 11-16 have been noted in the rejection of claims 2-9 above. They are, therefore, rejected under the same rationale.

As to claim 17, Cochran, and Ulrich disclose substantially the invention as claimed. However, Cochran does not show or suggest that the second file operations on the second file system are performed after the file request has on the first file system has completed, as recited in claim 17. On the other hand, Ulrich discloses the use of the second file operations on the second file system are performed after the file request has on the first file system has completed (col.6, lines 45-58). It would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify Cochran' system by using second file operations on the second file system are performed after the file request has on the first file system has completed. One having ordinary skill in the art would have found it motivated to use such a modification for the purpose of allowing the first file server to access files on the second disk array in the event of a failure of the second file server.

The limitations of claims 19 have been noted in the rejection of claims 2, and 4-9 above. They are, therefore, rejected under the same rationale.

As to claim 20, Cochran, and Ulrich disclose substantially the invention as claimed. However, Cochran does not show or suggest that if the operation on the first file system is a close operation then copying the file to the second file system, as recited in claim 20. On the other hand, Ulrich discloses the use wherein if the operation on the first file system is a close operation then copying the file to the second file system (col.6, lines 35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cochran' system by determining if the operation on the first file system is a close operation then copying the file to the second file system. One having ordinary skill in the art would have found it motivated to use such a modification for the purpose of allowing the first file server to access files on the second disk array in the event of a failure of the second file server.

The limitations of claims 21-22 have been noted in the rejection of claims 2, and 4-9 above. They are, therefore, rejected under the same rationale.

Independent claims 23-27 recites similar elements as claims 1-2, and 4-9, in file server. They are rejected under the same rationale.

Independent claims 33 and 35-36 recites similar elements as claims 1-2, and 4-9, in an application server. They are rejected under the same rationale.

Independent claims 37-39 recites similar elements as claims 1-2, and 4-9, in means plus function language. They are rejected under the same rationale.

5. **Claims 28-32 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cochran US Patent no. 6,718,447 in view of Ulrich et al., (hereinafter "Ulrich") US Patent no. 6,775,792 and further in view of the Applicant admitted prior art (see specification page 1-2 and fig.1).

Independent claims 28-32 and 34 recite similar elements as claims 1-2, and 4-9, in a file server. Neither Cochran, or Ulrich disclose a NAS gateway; a storage area network (SAN), the physical storage component comprising a portion of the SAN, the NAS gateway configured to communicate over the SAN to access the physical storage component. However, applicant admitted prior art discloses the claimed "a NAS gateway; a storage area network (SAN), the physical storage component comprising a portion of the SAN, the NAS gateway configured to communicate over the SAN to access the physical storage component (see, fig.1 and specification page 1, section [02]-[07]). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Cochran, and Ulrich' system by incorporating

the use of SAN and NAS gateway. One having ordinary skill in the art would have found it motivated to use such a NAS gateway into Cochran and Ulrich' system for the purpose of providing access to the storage area network, thereby providing high capacity storage.

Remarks

6. Applicant argues, page 2, that neither Cochran nor Ulrich fail to teach "a file server having a first file system and a second file system having a different format than the first file system."

7. Applicant's argument is not persuasive because Ulrich does discloses the limitation as cited above. For example, Ulrich discloses In one embodiment, the network file storage system includes a first file server operably connected to a network fabric; a second file server operably connected to the network fabric; first file system information loaded on the first file server; and second file system information loaded on the second file server, the first file system information and the second file system information configured to allow a client computer operably connected to the network fabric to locate files stored by the first file server and files stored by the second file server without prior knowledge as to which file server stores the files. In one embodiment, the first file system information includes directory information that describes a directory structure of a portion of the network file system whose directories are stored on the first file server, the directory information includes location information for a first file, the location information includes a server id that identifies at least the first file server or the second file server, (col. 6, lines 41-57). As being cited, Ulrich describes the first file server and

the second file server, and these two file servers do have a different format. Ulrich also describes that the network file storage system loads first file system metadata on a first file server operably connected to a network fabric; loads second file system metadata on a second file server connected to the network fabric, the first file system metadata and the second file system metadata include information to allow a client computer operably connected to the network fabric to locate a file stored by the first file server or stored by the second file server without prior knowledge as to which file server stores the file, (col. 5, lines 46-55). The aforementioned assertion is moot, refer to the rejection above.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noosha Arjomandi whose telephone number is (571) 272-9784. The examiner can normally be reached on Monday through Friday, 8:30am - 6:00pm. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pierre Vital can be reached on (571) 272-4215. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 27, 2007

Noosha Arjomandi

Art Unit 2167

/CDL/

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